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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/647,448	08/25/2003	Hiroyuki Kumakura	03310.033001	1648

7590 08/24/2005

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Houston, TX 77010

EXAMINER

HARAN, JOHN T

ART UNIT	PAPER NUMBER
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1733

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/647,448

Applicant(s)

KUMAKURA, HIROYUKI

Examiner

John T. Haran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 August 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-13 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/03, 2/04, 3/05.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: translation JP 11330162.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statements (IDS) submitted on 8/25/03, 2/17/04, and 3/15/05 have been considered by the examiner.

Claim Objections

2. Claim 11 is objected to because of the following informalities: in line 3 the word "heatable" is misspelled. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 8 and 9 recite the limitation "the first table". There is insufficient antecedent basis for this limitation in the claim. It appears these claims should depend from claims 4 and 5, respectively.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3 and 6-7 are rejected under 35 U.S.C. 102(e) as being anticipated by Honda et al (U.S. Patent 6,365,840).

Honda et al discloses a method of bonding a semiconductor chip to a substrate with an electrically conductive adhesive such that the connection terminals of the chip and substrate are electrically connected wherein the bonding process includes a first heating and pressing step wherein the opposing connection terminals are not in contact with each other and a second heating and pressing step wherein a stronger pressure and higher temperature is applied to the chip to electrically connect the terminals and cure the adhesive (See Figure 4A-D; Column 8, lines 1-46). Honda et al anticipates claims 1-3 and 6-7.

It is noted that it is unclear if Applicant intends for the language “to connect the opposing connection terminals to each other” to mean a direct contact between the terminals, however the current wording reads on an electrical connection wherein the terminals are connected through the electrically conductive particles of a conductive adhesive.

7. Claims 1-3, 6-7, and 10-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Takeshita et al (U.S. Patent 6,458,236).

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Takeshita et al discloses a method of bonding a semiconductor chip to a substrate with an electrically conductive adhesive such that the connection terminals of the chip and substrate are electrically connected wherein the bonding process includes semisetting the adhesive on the substrate with a heated pressure head, placing the chip on semiset adhesive, and pressing the chip with a heated pressure head at a higher temperature to electrically connect the chip to the substrate and cure the adhesive (Column 7, lines 28-59). It is inherent that the placing of the chip involves some degree of pressure of the chip against the heated adhesive. Takeshita et al anticipates claims 1-3, 6-7, and 10-11.

It is noted that it is unclear if Applicant intends for the language "to connect the opposing connection terminals to each other" to mean a direct contact between the terminals, however the current wording reads on an electrical connection wherein the terminals are connected through the electrically conductive particles of a conductive adhesive.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 4-5 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over one of Honda et al (U.S. Patent 6,365,840) or Takeshita et al (U.S. Patent 6,458,236) taken in view of JP 2-226738 and JP 11-330162 .

Regarding claims 4-5 and 8-9, Honda et al and Takeshita et al are silent towards the two pressing steps taking place on different tables, however such is well known and conventional in the assembly art as shown for example in JP 2-226738 (See English abstract). Honda et al and Takeshita et al are also silent toward heating the assembly from the substrate side, however such is well known and conventional in the assembly art as shown for example in JP 11-330162 (See English computer translation, paragraph 0013). Furthermore one skilled in the art would have readily appreciated that heating the support table or heating the pressing head are obvious alternate expedients for heating the assembly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use conventional techniques in the methods of Honda et al and Takeshita et al such as performing each pressing step on a separate tables and heating the tables to provide the necessary bonding temperature.

10. Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over one of Honda et al (U.S. Patent 6,365,840) or Takeshita et al (U.S. Patent 6,458,236) taken in view of JP 11-330162.

Regarding claims 12 and 13, Honda et al and Takeshita et al are silent towards connecting the terminals and then heating the adhesive to the second temperature for curing the adhesive, however such is well known and conventional as shown for

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example in JP 11-330162 (See computer translation paragraphs 0016-0017). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use conventional techniques in the methods of Honda et al and Takeshita et al pressing such that the terminals are connected and then heating the adhesive to the second temperature for curing the adhesive.

11. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeshita et al (U.S. Patent 6,458,236) in view of Honda et al (U.S. Patent 6,365,840).

Regarding claims 10 and 11, Takeshita et al is silent towards the pressing heads being heated, however such is well known and conventional as shown for example in Honda et al. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use conventional techniques in the method Takeshita et al such as heating the pressure head.

Conclusion

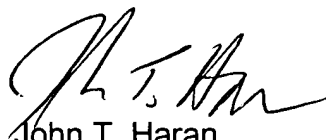
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John T. Haran whose telephone number is (571) 272-1217. The examiner can normally be reached on M-Th (8 - 5) and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (571) 272-1156. The fax phone

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number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "John T. Haran", is positioned above the printed name.

John T. Haran
Primary Examiner
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